Title
Welfare Transitions in the 1990s: The Economy, Welfare Policy, and the EITC

Author
Grogger, Jeffrey

Publication Date
2003

California Center for Population Research
University of California - Los Angeles

Welfare Transitions in the 1990s: The Economy, Welfare Policy, and the EITC

Jeffrey Grogger

CCPR-023-03

January 2003

California Center for Population Research
On-Line Working Paper Series

Welfare Transitions in the 1990s: The Economy, Welfare Policy, and the EITC

Jeffrey Grogger

School of Public Policy
UCLA
405 Hilgard Avenue
Los Angeles, CA 90095-1656
jgrogger@ucla.edu
(310) 825-1960

January 10, 2003

The author gratefully acknowledges support from the Administration for Children and Families, U.S. Department of Health and Human Services. However, opinions and conclusions expressed herein are those of the author, and do not necessarily represent the positions of ACF, HHS, or any other government agency. I thank Duncan MacRae for extraordinary research assistance and seminar participants at Texas A&M and the University of Texas for helpful comments.

Abstract

The rapid decline in the welfare caseload remains a subject of keen interest to both policymakers and researchers. In this paper, I use data from the Survey of Income and Program Participation spanning the period from 1986 to 1999 to analyze how the economy, welfare reform, the Earned Income Tax Credit, and other factors influenced welfare entries and exits, which in turn affect the caseload. I find that the decline in the welfare caseload resulted from both increases in exits and decreases in entries. Entries were most significantly affected by the economy, the decline in the real value of welfare benefits, and the expansion of the EITC. The EITC had substantial effects on initial entries onto welfare. Exits were most significantly affected by the economy and federal welfare reform. Federal reform had its greatest effects on longer-term spells of the type generally experienced by more disadvantaged recipients. Some out-of-sample predictions help explain the otherwise puzzling observation that, despite substantial increases in the unemployment rate since 2000, caseloads have remained roughly constant.

I. Introduction

The 1990s were a volatile time for the U.S. welfare system. At the beginning of the decade, 4.1 million families received payments under the Aid to Families with Dependent Children (AFDC) program. By 1994, that number had risen to 5 million. The caseload then plummeted to 2.6 million families in 1999. Those families represented only 2.6 percent of the U.S. population, the smallest proportion receiving aid since 1967 (U.S. Department of Health and Human Services 2002).

A substantial body of research has attempted to explain these changes. Most studies have focused on two factors: the economy and welfare reform. The welfare caseload began to rise as the economy entered a recession during 1990-91. It fell as the economy expanded. At the same time, many states began reforming their welfare programs under waivers from the AFDC program. In 1996, Congress passed the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA). As a result, all states replaced AFDC with Temporary Assistance for Needy Families (TANF) between 1996 and 1998. Compared to AFDC, in most states TANF imposes greater work requirements, greater sanctions for violating those requirements, and limits on the amount of time that recipients can receive aid.

Most studies agree that both welfare reform and the economy played important roles in reducing the caseload between 1994 and 1999.[1] A few studies point to other factors as well. MaCurdy, Mancuso, and O'Brien-Strain (2002) show that the decline in the real value of welfare benefits also contributed to the decline in caseloads. Grogger

[1] See Blank 2000; CEA 1997, 1999; Grogger 2000; Huang, et al. 2000; Levine and Whitmore 1998; O'Neill and Hill 2001; Schoeni and Blank 2000; Wallace and Blank 1999. Three studies are outliers. Ziliak, et al. (2000) and Figlio and Ziliak (1999) estimate that welfare reform actually increased the caseload, albeit insignificantly. Rector and Youseff (1999) estimate that the economy had no effect on caseloads. See Blank (2002) and Grogger, Karoly, and Klerman (2002) for detailed reviews.

(2003, forthcoming) reports that the Earned Income Tax Credit (EITC) played a particularly strong role in reducing the welfare participation rate.

In this study I estimate the effects of the economy and policy changes on welfare flows, that is, entries and exits, rather than the stock measures of welfare receipt that have been the focus of most previous analyses. At first glance, one might expect stocks and flows to provide essentially equivalent information, since they are linked by a simple transition rule. Yet there are reasons to think that flows might be more informative and of substantial interest in their own right.

Hutchens (1981) notes that policy changes may have different effects on welfare entry and exit due to the monetary and psychic costs associated with initially qualifying for the program. Furthermore, entry effects may weigh in at least some observers evaluation of the success of welfare reform. Conservative proponents of reform explicitly sought to reduce welfare entries, particularly entries related to unwed childbearing (see R. Kent Weaver, 2000, ch. 6). Such observers might question the success of welfare reform if the decline in the caseload resulted entirely from increased exits.

Entry effects may also have implications for the provision of in-kind transfers. Historically, both Food Stamps and Medicaid were closely linked to welfare: families typically applied for welfare and Food Stamps at the same time, and Medicaid insurance for families was limited to families on welfare. If families primarily learn about non-cash transfer programs when they first apply for welfare, then policy interventions that reduce welfare entry could also reduce take-up of such safety net services.

Furthermore, entry effects may affect one's interpretation of recent research on welfare reform. Since welfare reform experiments are based on welfare participants, they reveal primarily how policy reforms affect welfare exits.[2] So-called "leaver" studies, which track families as they move off the welfare rolls, explicitly focus on the behavior of families exiting welfare. However, if recent policy changes have had important effects on welfare entries, then such studies provide only a partial portrayal of how those changes have affected life in the low end of the income distribution.

Finally, accounting for the link between stocks and flows reveals inertia in welfare caseloads. Even though economic and policy changes may affect entries and exits contemporaneously, it takes time for those changes to fully manifest themselves in the welfare caseload. As a general proposition, this point has been recognized by others (Klerman and Haider 2002). Here I show that it helps to explain the otherwise puzzling observation that, despite large increases in unemployment between 2000 and 2002, the caseload has remained roughly constant.

Welfare entries and exits have been the focus of a handful of prior welfare reform studies. However, those studies have been based on relatively small samples. This has sometimes resulted in precision problems, which have been further exacerbated by the fact that welfare transitions are relatively rare events. In addition, most previous studies have involved sample periods that include only one or two years of post-reform data, which also has made it difficult to estimate the effects of reform with much precision.

As a result, previous estimates are quite mixed, and in many cases, they run contrary to expectations. For example, Ribar's (2002) analysis of SIPP data from 1991 to 1995 yields a marginally significant estimate suggesting that waiver-based reforms

[2] See Grogger, Karoly, and Klerman (2002) for a comprehensive review of numerous reform experiments.

actually decrease welfare exit (which would increase welfare use) while having no effect on entry. Acs et al. (2002) use SIPP data covering the periods 1990-1992 and 1996-1998 to study the effects of several types of welfare reform policies. They find that several types of waiver-based reforms increase exit, but generally find no effect on entry. Gittleman (2001) studies a sample from the Panel Study of Income Dynamics (PSID) that extends through 1995. He finds that waivers increase exits, but also finds that they increase entries. Hofferth et al. (2000a, b), also analyzing the PSID, estimate the effects of several reforms, as did Acs, et al. (2002). They find work requirements and sanctions to increase exits, although six of the seven reforms they consider have insignificant effects on entry. Finally, using administrative data from five urban counties, Mueser et al. (2000) report that reform decreases entry and increases entry. Although their findings are mostly consistent with expectations, there are questions about the extent to which their results are representative of the nation as a whole.

My analysis employs SIPP data spanning the period from 1986 through 1999. These data alleviate some of the problems confronting earlier researchers. My sample sizes are substantially larger than those of earlier analyses, which helps solve the precision problem, and generally results in estimates that are consistent with expectations. The longer sample period has the advantage of allowing me to estimate the effect of TANF, rather than being restricted to the effect of waiver-based reform. A final advantage of my analysis is its inclusion of the EITC, which proves to be empirically important.

In the next section of the paper, I discuss the data. Section III discusses the analytical methods. In section IV I present regression results. In section V I use those results to decompose the decline in welfare participation rates into components attributable to changes in the economy, changes in policy, and other factors. In Section VI I use the estimation results to make predict how recent changes in the economy should affect welfare participation rates. Section VII concludes.

II. The Data

A. Background on the SIPP

The SIPP consists of a number of panels, each of which is a longitudinal probability sample of the U.S. population. In this study I include data from the 1986, 1987, 1988, 1990, 1991, 1992, 1993, and 1996 panels.[3] The duration of the panels varies between 24 months (the 1988 panel) and 48 months (the 1996 panel). Thus the sample period extends from 1986 through 1999.

The panels are divided into waves, or four-month intervals at which the core module questionnaire is administered. The core module provides extensive information about the behavior of panel respondents, including their welfare use. At each wave, the SIPP asks respondents about their welfare use in each of the previous four months. Although these data could be used to construct monthly welfare-use records, they suffer from "seam bias," meaning that reported transitions are much more likely to occur between waves rather than within waves.[4] For this reason, I only make use of data from month 4 of each wave.

An entry occurs in wave t if the respondent was not receiving aid at wave t-1 but received aid in month t. An exit occurs if she received welfare in wave t-1 but not in

[3] The 1989 panel was truncated after 12 months; there were no new panels between 1993 and 1996; and there have been no new panels since 1996.

[4] In fact, some of the within-wave transitions that exist are due to the SIPP's imputation procedures rather than changes in behavior (Westat 2001).

wave *t*. Participation rates at wave *t* are calculated as the number of persons on aid at wave *t* divided by the number of persons in the sample.

The sample is restricted to low-skill women, defined as women with a high-school diploma or less, who are between the ages of 15 and 54. These women constitute the vast majority of all adult welfare recipients. SIPP respondents are classified on the basis of their age and education in wave 1, so they remain in the sample even if they attain more education or turn 55 during the panel period.[5]

Figure 1 plots trends in welfare use, welfare entries, and welfare exits. In each figure, the dots represent means by wave within panels.[6] Because many of the panels overlap, there are multiple data points for many time periods. The solid line in each figure represents a lowess smooth of the raw wave-by-panel averages.

In panel A, I also plot population welfare participation rates based on administrative data published by the U.S. Department of Health and Human Services (2002). Because the denominator for the administrative data is the U.S. population, whereas the denominator for the SIPP series consists only of low-skill women, one would expect the SIPP series to be higher. What Figure 1 shows is that, for most of the sample period, the general pattern in the SIPP tracks the administrative data quite well. Welfare use was roughly constant in the late 1980s, rose sharply between 1990 and 1993-94, and fell sharply thereafter. However, at the end of the sample period, welfare use fell faster in the SIPP than in the administrative data. This may be due to under-reporting of welfare use, which increased during the 1990s (Bavier 1999).

[5] The sample also excludes women living in 19 small states. Nine of those states are not separately identified in the SIPP, which precludes me from merging on state-level data. Sample sizes in the other states were so small that, for at least one of the transition models below, there were no actual transitions. With state dummies in the model, this caused the logit model to fail to converge.

[6] All SIPP-based estimates in this paper are based on weighted data.

Three points are apparent in the plot of entry rates in panel B. First, entry rose from the mid-1980s to the mid-1990s, then fell in the late 1990s. Thus changes in entry were responsible for part of the decline in welfare use. Based on both a somewhat different SIPP sample and administrative data from California, Grogger, Haider, and Klerman (2003) estimate that the decline in entry may have accounted for about half of the decline in welfare use.

It is also apparent that welfare entry is a rare event, even among low-skill women. On average, less than 1 percent of such women begin a welfare spell in each wave. Furthermore, entry is volatile. The rarity and volatility of entry rates may help explain why previous estimates of the effects of welfare reform on welfare entry have been so mixed.

Exit rates are plotted in Panel C. Until about 1993, exit rates were roughly constant at about 10 percent per wave. By 1999, they had risen to almost 25 percent.

Underlying these exit and entry rates are the welfare spells and non-welfare spells, respectively, that are the basis for the analysis below. The SIPP samples from the population of such spells in two distinct ways. The distinction has important implications for the regression analysis to follow.

Implicitly, the SIPP employs both interval and point sampling of welfare spells. Under interval sampling, the analyst fixes an observation period and samples spells that begin during that period. Spells that begin during the panel period are essentially interval sampled. For the remainder of the paper, I refer to these as "fresh" spells. Under some fairly standard assumptions, such fresh spells are representative of the population distribution of spells (Cox 1967; Frank 1978).

Under point sampling, the analyst samples from spells in progress at a point in time. This is essentially how the SIPP samples spells that are in progress when the panel begins. I refer to these as "ongoing" spells for the remainder of the paper. These ongoing spells are representative of spells in progress as of month 1 of the panel, but they are not representative of the population distribution of spells. They over-represent lengthy spells and longer-term recipients, who are generally more disadvantaged than the average recipient (Bane and Ellwood 1994).

These differences are apparent in Table 1, which provides summary characteristics of spells and recipients sampled under the two different mechanisms. To compute the duration of ongoing spells, I use data on the date the spell began that is reported in the SIPP recipiency history module.[7] Column (1) of Panel A shows that the average ongoing welfare spell had been in progress for 62 months as of month 1 of the panel. The median completed duration of these spells is 160 months, which is due to the high level of right-censoring among those spells.[8] The median completed duration for fresh spells is 12 months, as shown in column (2). The average exit rate from the ongoing spells is only 0.07, compared to 0.189 from the fresh spells.

The Table also shows that welfare recipients differ in a number of important ways across the two types of spells. Recipients experiencing ongoing spells are older, less likely to be married, less educated, have more children, and are more likely to be minority members than their counterparts experiencing fresh spells. Other studies have

[7] Ongoing spells are spells in progress in month 1 of the panel for which the respondent provided a start date that preceded month 1. Spells in progress in month 1 that were reported to start in month 1 or later are classified as fresh spells. Preliminary life table analyses showed that exit rates for these spells did not differ significantly from fresh spells that began after the first wave.

[8] Non-censored ongoing spells had a mean month-1 duration of 55 months and a mean completed duration of 72 months.

also associated these traits with longer spells on aid (Bane and Ellwood 1983, 1994; O'Neill et al. 1987; Pavetti 1993).

The information in Panel A illustrates clearly that the spells and recipients sampled by the two different mechanisms are substantially different. Given these differences, it would not be surprising if the two groups of recipients responded differently to policy interventions or changes in economic conditions. To account for this possibility, I stratify the sample in the analysis that follows, estimating separate exit regressions from the fresh and ongoing welfare spells. The fresh spells yield estimates relevant to the population distribution of spells, whereas the ongoing spells provide insights into how the changes that occurred during the 1990s affected longer-term welfare recipients.

The non-welfare spells that underlie the entry analysis are also implicitly sampled by the same two mechanisms. The ongoing non-welfare spells are primarily initial non-welfare spells, that is, they pertain to people who have never received welfare. The fresh non-welfare spells begin when welfare spells end during the panel period, and thus are useful for studying re-entry.

Given the discussion above, it would seem natural to explicitly distinguish the initial spells from other ongoing non-welfare spells. However, the SIPP does not allow one to make such a distinction consistently throughout the sample period. Prior to the 1996 panel, the recipiency history module asked all SIPP respondents whether they had received aid at any point prior to the beginning of the panel. In the 1996 panel, those questions were posed only to recipients not receiving aid in month 1. Thus in the 1996 panel, initial spells cannot be distinguished from other ongoing non-welfare spells. A tabulation of the pre-1996 data shows that 95 percent of ongoing non-welfare spells are indeed initial spells. As a result, I refer to the analysis of the ongoing non-welfare spells as the initial entry analysis below.

Not surprisingly, Panel B of Table 1 shows that the non-welfare spells and potential recipients sampled according to the two different mechanisms are quite different. Median completed durations could not be computed for either type of spell due to high rates of right-censoring. Beyond that, only 0.6 percent of low-skill women begin an initial spell each wave; in contrast, 11 percent of former recipients re-enter. Those re-entering are younger, less likely to be married, less educated, have more children, and are more likely to be minority members than those at risk of initial entry. As with the exit analysis, I stratify the non-welfare spells for the entry analysis below.

B. Economic and Policy Variables

I merge the welfare transition data described above to several variables intended to characterize the economic conditions and policy environment facing actual and potential welfare recipients. Economic conditions are captured by two variables: the unemployment rate and the 25th percentile weekly wage. Both measures vary by state of residence and year. Unemployment data are published by the Bureau of Labor Statistics (2002). The weekly wage measure is based on tabulations of the Outgoing Rotation Groups of the Current Population Survey from MacRae (2002).

Annual means are presented in the first panel of Table 2. Average unemployment rose quickly in the early 1990s and then fell gradually. Low-skill wages fell about 6 percent between 1990 and 1994, remained roughly constant through 1997, then returned to their 1990 level by 1999.

Welfare reform is represented by two dummy variables. The first equals one in all months between the time that the recipient's state of residence implements a statewide welfare reform waiver and the time that it implements its TANF plan. The second equals one in all months after it implements its TANF plan. These data are from Council of Economic Advisers (1999). The second panel of Table 2 shows that states began implementing state-wide waivers in 1992. By the time PRWORA was passed, 29 states had implemented some sort of state-wide waiver. Twenty-four states implemented TANF during 1996; all but one of the rest put their TANF plans in place during 1997.[9]

These variables allow me to estimate the effects of reform as a whole, but they do not allow me to estimate the effects of specific reforms such as work requirements, sanctions, and time limits. As valuable as such estimates might be, preliminary analyses revealed that it was impossible to estimates the effects of specific reforms on transition rates with any precision, even with the sample sizes available in the SIPP. As a result, I follow the lead of much of the prior literature on welfare reform, providing estimates of the effects of waivers and TANF as a bundle.

The other welfare policy variable is the maximum benefit available to a family of three. The maximum payment varies dramatically across states, from $170 in Mississippi to $626 in California and $1,118 in Alaska (in 1999). Panel C of Table 2 shows that the real value of average benefits fell by nearly 20 percent over the 1990s.

The final policy variable in the models below reflects the generosity of the EITC. The federal EITC is a refundable credit that can be characterized by its initial subsidy rate, its maximum credit (or equivalently, the income threshold below which the subsidy is available), the threshold at which the credit is phased out as earnings increase, and the

[9] The District of Columbia is treated like a state both here and below.

phase-out rate.[10] Fifteen states have implemented EITC's of their own, which typically increase the subsidy rate (and maximum payment) by either a fixed amount or a proportion of the federal rate.

Panel D of Table 2 presents mean subsidy rates and maximum benefits by year of the combined federal and state EITC's.[11] Two major changes occurred during the 1990s. First, the program became more generous. The credit rate for one-child families rose from 14.1 percent in 1990 to 34.8 percent in 1999. At the same time, the maximum credit rose from $1,196 to $2,314. Second, the program became relatively more generous for larger families. Credit rates and maximum credits were essentially the same for all families in 1990. In 1999, the credit rate was 6.4 percentage points, or 18 percent, higher for families with multiple children than for families with a single child. The maximum credit was $1500 higher. In the models reported below, I use the combined state and federal credit rate to characterize the generosity of the EITC. Estimates based on the maximum credit were generally similar but in some cases were less significant.

III. Estimation

Since the spells are measured discretely, it is natural to use a discrete-time hazard model for the regression analysis. Since entries represent a transition from a non-welfare spell to a welfare spell, and exits represent a transition from a welfare spell to a non-welfare spell, I can write the transition hazard generically as:

$$\begin{aligned} h_i(d) &= P(\text{family } i \text{ transitions in } d\text{th wave of spell} \mid \text{family had not transitioned by wave } d-1) \\ &= F[Z_{st}g + X_{di}d + g(d;q) + e_{st}] \qquad (1) \end{aligned}$$

[10] See Hotz and Scholz (2001) for a useful summary of the program.
[11] The credit rate used in the regressions is the sum of the federal and refundable state credit rates. Results based on measures that included non-refundable state credits were somewhat weaker, which may be the result of measurement error. For workers with little tax liability, the nominal non-refundable credit rate may substantially overstate the actual credit rate facing the worker.

The vector Z_{st} represents the economic and policy variables discussed above, including the unemployment rate, the 25th percentile wage, the waiver and TANF dummies, welfare benefits, and the EITC credit rate. These variables vary only by state and year, with the exception of the EITC credit rate, which also varies by family size. The vector X_{id} represents individual characteristics such as age, education, race, marital status, number of children, and the age distribution of children. Most of these variables are time-varying.

The term $g(d,q)$ is the baseline hazard, reflecting how the conditional transition rate varies with the length of the spell. For the exit and the re-entry models, the baseline hazard is specified flexibly via a series of dummy variables that capture durations of different intervals. The intervals reflect durations over which the hazard is roughly constant, a revealed by some preliminary analyses.[12] In the initial entry model, durations are collinear with age.[13] Thus age was entered via a series of dummy variables to provide a flexible baseline hazard for this model.[14]

The final term e_{st} represents unobservable, state-specific factors that influence welfare transitions. Examples may include unmeasured aspects of the state's economy or political sentiment toward welfare programs.

A problem arises if e_{st} is correlated with the variables included in Z_{st}. Such correlation has been referred to as policy endogeneity in the welfare reform literature.

[12] For the fresh spells (both welfare and non-welfare), separate dummies are included for durations of 1 to 7 waves; the hazard is assumed to be constant thereafter. For the ongoing welfare spells, separate dummies are included for durations of 1 to 3 waves; another is included for durations of 4 to 5 waves; the hazard is assumed to be constant thereafter.

[13] In principle, one could use information from the recipiency history modules from the pre-1996 to measure the duration since the last welfare spell for persons who had previously been on aid. Since the information needed to construct this variable is unavailable in the 1996 panel, the resulting measure would incorporate measurement error that was correlated with many of the variables of interest.

[14] These controls include dummies for single years of age from 15 to 24 and five-year age-group dummies thereafter.

The problem is that, if the policies reflected in Z_{st} are themselves influenced by unobservable determinants of welfare transition rates, then estimates based on the hazard model in equation (1) may be biased.

Although there is no way to control for arbitrary forms of policy endogeneity, state and year dummies may help reduce any potential bias. This amounts to assuming that $e_{st} = a_s + t_t + n_{st}$, where a_s represents time-invariant characteristics of states that influence welfare transitions, and t_t represents time-varying unobservables that influence welfare transitions in a similar manner across the states. The state-specific factors can be controlled for by including state dummies, or state fixed-effects, in the model, and the time-varying factors can be controlled for by including year dummies, or period effects. If n_{st} is uncorrelated with Z_{st}, then the estimates from equation (1) should be consistent.

A convenient choice for the function $F(\cdot)$ is the logistic. With this choice, the transition models can be estimated with conventional logit regression software. Estimates based on the logit model are reported in the next section.

IV. Estimation Results

A. Main Estimates

Table 3 presents estimation results. One feature of the logit model is that the estimated coefficients can be interpreted as approximate proportionate derivatives, where the approximation is better, the smaller the transition rate. The approximation is likely to be best for the initial entry model, but for the sake of expositional convenience, I will refer to the estimates from all the models as if they represented proportionate changes in the transition rates associated with a one-unit change in the explanatory variables.

Results from the initial entry model are presented in column (1). Both the economic variables are significant and perform as one might expect. Higher unemployment increases initial entry. This is consistent with estimates by Gittleman (2001) and Klawitter, Plotnick, and Edwards (2000), which appear to be the only two prior studies to have focused on initial entries. The estimate indicates that each percentage-point increase in the mean unemployment rate increases the rate of initial welfare entry by about 11 percent. Based on the annual means in Panel A of Table 2, reductions in the unemployment rate should have reduced welfare entry from 1992 to the end of the sample period in 1999.

Higher wages also decrease entry, but their effect is not as great as that of the unemployment rate. The coefficient indicates that each $10 increase in the real wage reduces entry by 6 percent. Furthermore, the effects of wages and the unemployment rate worked in opposite directions over part of the sample period. Based on the annual means in Table 2 and the wage coefficient in Table 3, wages should have increased initial entry by about 14 percent between 1990 and 1994, then decreased it by the same amount between 1997 and 1999.

The welfare reform coefficients are both negative, as one might expect, with the effect of TANF substantially larger than the effect of waiver-based reform. The TANF coefficient is fairly sizeable, indicating that it reduced entry rates about 30 percent. However, its standard error is also sizeable, which may stem from the collinearity between the TANF variable and the year dummies. As a result, the estimate is at best only marginally significant, with a t-statistic of -1.5.

Welfare benefits, in contrast, have a significant positive effect on initial entry. One would expect higher benefits to increase initial entry, if for no other reason than the higher eligibility thresholds that they imply. Yet both Gittleman (2001) and Klawitter et al. (2000) report that higher benefits decrease initial entry, significantly so in the case of Klawitter, et al. The coefficient in column (1) of Table 3 indicates that a $100 increase in real benefits increases the initial entry rate by roughly 23 percent. Thus the $89 decline shown in Table 2 would have reduced initial entry rates by about 20 percent between 1990 and 1999, all else equal.

The EITC coefficient is also significant. Indeed the expansion of the 1990s appears to have had a strong effect on initial entry rates. The coefficient indicates that each percentage-point increase in the credit rate reduces initial entry by 3.2 percent. Thus the increase in the mean credit rate for multiple-child families between 1993 and 1999 would have decreased initial entry by more than half. With an effect of that magnitude, one might expect the EITC to explain a substantial portion of the decline in the welfare participation rate over the same period.

The remaining estimates in column (1) show how various demographic characteristics affect initial entry. These effects largely accord with expectations. Young children, the lack of a high school diploma, minority status, and the presence of three or more children raise the likelihood of initial entry. Being married or childless greatly reduces the likelihood of initial entry. This comes as no surprise; married couples have to satisfy more stringent eligibility conditions than single parents, and the only childless adults who can qualify for aid are women beyond their first trimester of pregnancy.

Results from the exit models appear in the next two columns. For the most part, exits are less responsive than initial entries to both economic conditions and policy changes. An exception is the effect of unemployment on exits from ongoing spells. The estimate indicates that each percentage-point decline in the unemployment rate should have increased exits from ongoing spells by about 15 percent. However, unemployment has no effect on fresh spells. Wages have no significant effect on spells of either type.

The waiver and TANF coefficients are all positive and the two TANF coefficients are larger than the respective waiver coefficients. However, only the TANF coefficient in the ongoing spells model is significant. That coefficient is substantial in magnitude, indicating that TANF increased exit rates by roughly 48 percent.

The maximum benefits coefficients are both negative, suggesting that higher benefits reduce exit rates. However, both coefficients are insignificant. This is a common finding in previous studies, including those based on pre-reform data.[15] The EITC coefficients are positive in both models, suggesting that higher credit rates increase exit. Again, however, both coefficients are insignificant. The demographic variables mostly have significant coefficients, and most of them accord with expectation.

The final column presents estimates from the re-entry model. Of the variables that measure the economic and policy environment, only the EITC coefficient is significant, indicating that increases in the credit rate reduce re-entry. As in the initial entry model, the welfare reform coefficients are fairly sizable though insignificant. Re-entry seems much less responsive to economic conditions than initial entries, and less responsive than exits as well.

---

[15] See Acs, et al (2001), Gittleman (2001), Harris (1993), and Pavetti (1993). Hutchens (1981), O'Neill, et al. (1987) and Ribar (2002) report significant negative effects.

To summarize, initial entries are most significantly affected by economic conditions, benefit levels, and the EITC. This suggests that the immediate economic opportunities facing potential entrants play an important role in determining whether they apply for welfare. Exits are most significantly affected by the unemployment rate and TANF. Indeed, the only significant effect of TANF is to increase exits from ongoing spells. The estimated coefficient suggests that TANF induced longer-term recipients to leave the rolls in substantial numbers. Re-entry seems to be completely unaffected by economic conditions and benefit levels. The effects of reform on re-entry are roughly as large (in absolute value) as their effects on exit, but the coefficients are insignificant. Only the EITC expansions significantly affect re-entry.

In this summary interpretation of the estimates, precision is an issue. The TANF coefficients in the entry models are sizeable but insignificant. The same is true of the EITC coefficients in the exit models. It may be that both policies had substantial effects on both entries and exits. However, even with the sample sizes available in the SIPP, there is insufficient precision to distinguish some potentially important effects from effects that are equal to zero.

B. Additional Estimates

Table 4 presents estimates from specifications that include additional measures of economic conditions, including lagged unemployment and job growth. The motivation for these specifications is that the unemployment rate and the low-skill wage measure might not adequately control for the state of the economy by themselves, and that adding additional measures might provide greater insight in to the role played by the economy in influencing entries and exits. In Table 4, only the coefficients associated with the economic and policy variables are shown in order to save space.

None of the lagged unemployment coefficients are significant. In many previous studies of the welfare caseload, lagged unemployment often has stronger effects than current unemployment, and in the case of multiple lags, often the last lag is the only significant coefficient (CEA 1997, 1999; Figlio and Ziliak 1999; Ziliak, et al. 2001). Klerman and Haider (2002) argue that such results are indicative of misspecified dynamics and predict that such patterns should not appear in models of welfare transitions.

Whether that prediction is borne out by these data is a matter of interpretation. In some cases, the lagged unemployment coefficients are slightly larger than the current coefficients; in others they are smaller. Testing Klerman and Haider's prediction is hampered by the considerable collinearity between past and current unemployment, which is also the likely reason why the current unemployment rate is insignificant when the lag is included in the model.

The job growth coefficients suggest that greater growth increases welfare entry and decreases welfare exit. However, in all cases, the coefficients are insignificant.

On the whole, these additional measures do not substantially improve the characterization of the economic conditions affecting welfare transitions. Of all the measures considered, only current unemployment and low-skill wages significantly affect entry or exit. Furthermore, except as noted above, including the additional measures in the regression models has little effect on the other parameter estimates.

V. Decomposing the Effects of Economic and Policy Changes on the Decline in Welfare Participation

The coefficients in Table 3 provide quantitative estimates of the effects of economic and policy changes on welfare transition rates. From these one can infer the qualitative effects of those changes on the welfare participation rate. However, it would be valuable to provide quantitative information about the effects of recent changes on welfare participation. Although there are in principle a number of ways one could do this, a common practice in the welfare reform literature has been to decompose the decline in the welfare participation rate that took place during the 1990s into components attributable to the expanding economy, welfare reform, and other factors. I provide such decompositions based on the models presented in Table 3 in this section.

The basis for these decompositions is the relation:

$$\Delta s_t \cong \frac{\partial s_t}{\partial z_t} \Delta z_t \tag{2}$$

where s_t denotes the welfare participation rate at time t and ? denotes a finite change. Equation (2) says that the change in s_t due to a change in some factor z (such as the unemployment rate) is approximately equal to the derivative of s_t with respect to z_t, multiplied by the change in z_t. The approximation is better, the smaller is the change in z_t.[16]

The welfare participation rate can be written in terms of welfare transition rates using the transition rule:

$$s_t = (1 - x_t) s_{t-1} + e_t (1 - s_{t-1}), \tag{3}$$

[16] For this reason, I compute the decompositions as the sum of several wave-by-wave changes, rather than a single six-year change.

where e_t denotes the entry rate and x_t denotes the exit rate. In words, equation (3) says that the welfare participation rate at period t is equal to the welfare participation rate at period t-1, less exits (1-x_t), plus entries (from the proportion 1-s_{t-1} of the population at risk of entry). Because current participation depends on past participation as well as current transition rates, the participation rate exhibits inertia: current changes in entry and exit rates affect not just the current participation rate, but future participation rates as well.

To write entry and exit rates in terms of regression models presented in Table 3, I re-write the entry rate as

$$e_t = w_t e_t^o + (1 - w_t) e_t^f , \tag{4}$$

where e_t^o is the entry rate from ongoing non-welfare spells at time t and e_t^f is the entry rate from fresh non-welfare spells at time t. Of the sample at risk of entry at time t, w_t is the fraction at risk of entry from ongoing non-welfare spells, so 1-w_t is the fraction at risk of entering from fresh non-welfare spells. Adopting analogous notation, I re-write exit rates as:

$$x_t = v_t x_t^o + (1 - v_t) x_t^f . \tag{5}$$

Substituting (4) and (5) into (3) and differentiating with respect to z_t yields:

$$\frac{\partial s_t}{\partial z_t} = -[v_t \frac{\partial x_t^o}{\partial z_t} + (1 - v_t) \frac{\partial x_t^f}{\partial z_t}] s_{t-1} + [w_t \frac{\partial e_t^o}{\partial z_t} + (1 - w_t) \frac{\partial e_t^f}{\partial z_t}](1 - s_{t-1}) . \tag{6}$$

Since the transition rates are assumed to be logistic, the derivatives in (6) take the simple form:

$$\frac{\partial x_t^j}{\partial z_t} = x_t^j (1 - x_t^j) g_z^j \qquad j=o, f \tag{7}$$

and

$$\frac{\partial e_t^j}{\partial z_t} = e_t^j (1 - e_t^j) b_z^j \qquad\qquad j{=}o, f \qquad\qquad (8)$$

where the term g_z^o denotes the coefficient on z in the model for ongoing welfare spells, g_z^f denotes the coefficient on z in the model for fresh welfare spells, and b_z^o and b_z^f denote the corresponding coefficients from the models for ongoing and fresh non-welfare spells. Substituting (7) and (8) into (6) and the result into (2) provides a formula for decomposing the decline in the welfare participation rate into components attributable to the economy, welfare reform, and other factors. In addition to providing an overall decomposition, equation (6) also provides a means for isolating the contribution of entry and exit to the overall change. The first term in equation (6) (multiplied by ?z_t) provides the change in the welfare participation rate that is due to the effect of z_t on welfare exits; the second term provides the change in the participation rate that is due to the effect of z_t on welfare entries.

Table 5 presents decompositions for the period from 1993, when the welfare participation rate peaked, to 1999. The top panel of the Table shows that the peak welfare participation rate was 7.9 percent. By the end of 1999, it had fallen to 3 percent, a 62 percent decline.

Panel B decomposes this decline into components attributable to economic conditions and policy changes. The first column presents changes in the participation rate. The second presents these changes relative to the baseline 1993 participation rate, whereas the third column presents changes relative to the 1993-1999 decline. Relative to the baseline, the change in the unemployment rate between 1993 and 1999 reduced the welfare participation rate by 3.1 percent, which amounts to 5 percent of the 1993-1999 decline in the participation rate.[17] Low-skill wages, which rose only about 5 percent over this period, account for a negligible fraction of the decline in welfare.

Likewise, welfare waivers account for little of the decline. In contrast, TANF had sizeable effects on welfare participation. TANF reduced welfare participation by 7.7 percent, relative to baseline, accounting for 12.4 percent of the 1993-1999 decline. Welfare benefits had a small effect, accounting for just over 2 percent of the decline in the participation rate.

Like TANF, the EITC expansions had substantial effects on the welfare participation rate. They reduced welfare participation by 6.5 percent, relative to its 1993 peak. Thus they accounted for over 10 percent of the 1993-1999 decline.

Columns (4) through (6) show the components of the change in the welfare participation rates that are due to changes in entry; columns (7) through (9) show the components that are due to changes in exit. These figures show that the effects of the EITC and welfare benefits worked primarily through entries. The effects of TANF worked mostly through exits, whereas the effect of the unemployment rate worked similarly through both.

In total, the six economic and policy factors accounted for in the decompositions combine to generate a roughly 20 to 25 percent decline in the welfare participation rate. Put differently, they account for less than half of the decline that took place during the 1990s. The remainder is explained by factors other than the falling unemployment rate and the changes in welfare and tax policy accounted for in the model. These results make

[17] Klerman and Haider (2002) have argued that decompositions that start with the peak in welfare use may understate the effect of the economy, because the economy began to improve before the caseload began to fall. When I start the decomposition at the time that the unemployment rate peaks, the change in the unemployment rate accounts for about 9 percent of the caseload decline, with little change in the other results.

it clear that the decline in welfare participation was a very complex phenomenon. Neither the longest economic expansion in post-war history, nor the greatest change in social policy since the Great Depression, explains more than a fraction of the decline.

Before moving on, it is worth noting that these decompositions are similar to those in Grogger (2004, forthcoming). There I estimated that welfare reform explained about 14 percent of the 1993-1999 decline in welfare participation, the EITC explained about 16 percent, and the unemployment rate explained about 10 percent. The similarity of my earlier estimates to those presented here is striking because the earlier estimates were based on an analysis of welfare participation rates in the Current Population Survey. Despite the use of different data sets and different analytical techniques, both analyses attribute similar portions of the caseload decline to changes in the economy and changes in policy.[18]

VI. Predicting the Effects of the Recent Economic Slowdown

The equations that underlie the decomposition analysis above can also be used to predict how welfare participation rates should respond to the recent downturn in the economy. Between January 2000 and September 2002, the U.S. unemployment rate rose from 4.0 to 5.6 percent. Yet at the same time, the welfare caseload has actually fallen

[18] At the same time, my decomposition results differ markedly from those of Haider, Klerman, and Roth (2002). Based on California transition data, they conclude that the economy accounted for roughly half of the decline in that state's caseload. Although differences in data and methods may explain part of the difference between their analysis and mine, there are many reasons to think that California should be different than the nation as a whole. California's main pre-PRWORA welfare waiver increased earnings disregards and reduced the implicit tax rates on earnings, policy changes that should have actually increased its caseload, all else equal. The state was the last to implement its TANF plan, in January 1998. It has a relatively lenient sanction policy and adult-only time limits. Compared to the rest of the nation, one would expect welfare reform to have played a relatively small role in reducing California's caseload. Furthermore, the recession of the early 1990s cut deeper and lasted longer in California than in the nation as a whole. Once it recovered, the state's economy grew more vigorously than elsewhere as well. For all these reasons, one would expect the economy to explain more of the caseload decline in California than in the nation as a whole.

slightly, from an average of 2.27 million families during 2000 to 2.02 million families in June 2002 (U.S. Department of Health and Human Services, 2002). Predictions based on the models in Table 3 help explain why caseloads have remained roughly constant despite the increase in unemployment.

I use equation (3) above to generate two sets of out-of-sample predictions for the welfare participation rate. The first is a counterfactual, which provides a prediction of how the participation rate would have evolved if the unemployment rate had remained at its January 2000 value of 4.0 percent. The result is displayed as the solid line in Figure 2. It shows that there was a fair amount of inertia in the system as of the beginning of 2000. Even if the unemployment rate had remained constant, the increase in exit rates and decrease in entry rates that took place during the latter part of the sample period (see Panels A and B of Figure 1) would have led to continued declines in the welfare participation rate.

To model how the increasing unemployment rate affected this trend, I first predict how it would have affected welfare transition rates using the expressions

$$\begin{aligned}\Delta x_t &= \frac{\partial x_t}{\partial z_t}\Delta z_t \\ &= [v_t \frac{\partial x_t^o}{\partial z_t} + (1-v_t)\frac{\partial x_t^f}{\partial z_t}]\Delta z_t\end{aligned} \tag{9}$$

and

$$\begin{aligned}\Delta e_t &= \frac{\partial e_t}{\partial z_t}\Delta z_t \\ &= [w_t \frac{\partial e_t^o}{\partial z_t} + (1-w_t)\frac{\partial e_t^f}{\partial z_t}]\Delta z_t\end{aligned} \tag{10}$$

using equations (7) and (8) to evaluate the derivatives. These expressions yield a predicted entry and exit rate series for the period from November 1999 (the end of the sample period) to September 2002 (the most recent date for which unemployment data are available). Because of the apparent inertia in the system, changes in the unemployment rate during this period may affect welfare participation rates well into the future. To capture such effects, I assume that entry and exit rates remain constant at their September 2002 values through September 2004. I then use the transition rule (equation (3)) to predict welfare participation rates based on these predicted transition rates.

The result is displayed as the dashed line in Figure 2. Through 2000, the predicted participation rate is essentially the same as the counterfactual participation rate. This is to be expected, since the unemployment rate hovered around 4 percent for most of that year. Yet even the substantial increase in the unemployment rate that took place in 2001 (when it rose from 4.2 percent in January to 5.8 percent in December) is predicted to have little effect on the welfare participation rate that year. This is the result of the inertia in the system: changes in unemployment affect welfare transition rates contemporaneously, but those changes take time to affect the welfare participation rate. This is the implication of the transition rule in equation (3), by which the participation rate is a function of past participation as well as current transition rates. This inertia helps to explain why the caseload continued to decline slightly between 2001 and mid-2002, even as the economy deteriorated substantially.

Another part of the explanation is that the unemployment rate has a fairly small effect on the participation rate. The predicted participation rate for September 2003, after twelve months of assumed 5.6 percent unemployment, is 0.023. The counterfactual prediction, based on the assumption that unemployment remained constant at 4.1 percent after November 1999, is 0.022. Although unemployment has statistically significant effects on transition rates, as shown in Table 3, its quantitative effect on the participation rate is fairly small, as was suggested by the decomposition analysis in Table 5.

VII. Conclusions

The results from this study are consistent with those from much of the prior literature on welfare reform. Both the economy and reform played important roles in reducing the welfare caseload during the late 1990s. The EITC had particularly strong effects.

At the same time, decomposing welfare participation into entries and exits yields insights not forthcoming from studies of the welfare caseload. It shows that much of the decline in welfare participation during the 1990s was driven by a reduction in welfare entries. First-time entry, in turn, was affected by the improving state of the economy, the decline in real benefit levels, and the expansion of the EITC.

Higher exit rates also drove the caseload decline. Exit rates fell due to the decline in unemployment and the imposition of TANF. TANF had a particularly important effect on long-term welfare spells.

The decomposition analysis indicated that TANF and the EITC played the most important roles in reducing welfare caseloads during the 1990s. The economy also played a part, but its part was smaller. The relatively modest effect of the economy, in conjunction with inertia in the caseload, helps explain why welfare receipt has remained roughly constant recently, despite considerable increases in unemployment.

The initial entry results raise a number of issues. First, they raise the question of whether TANF has reduced entries. The estimated effects are large, but they are statistically insignificant. The sizeable and significant EITC effects would be generally regarded as beneficial. At the same time, they raise questions about the take-up of safety-net services. If most families learn about such services when they first apply for welfare, then declines in initial entry rates due to expansions of the EITC may reduce knowledge and take-up of non-cash transfers.

More generally, the initial entry effects raise the question of how welfare reform has affected the behavior and well-being of families that would have signed up for welfare in the absence of recent policy changes. Although numerous experiments provide information about the effects of welfare reform on families receiving aid, non-entrants are inherently more difficult to study than recipients. Nevertheless, since roughly half the decline in the caseload was due to decreases in entry, the question merits serious attention.

References

Acs, Gregory, Katherin Ross Philips, Caroline Ratcliffe, and Douglas Wissoker, “Comings and Goings: The Changing Dynamics of Welfare in the 1990s,” unpublished manuscript, Washington, DC: Urban Institute, 2001.

Bane, Mary Jo, and David Ellwood, "The Dynamics of Dependence: The Routes to Self-Sufficiency," Manuscript, Urban Systems Research and Engineering, June 1983.

Bane, Mary Jo, and David Ellwood, *Welfare Realities: From Rhetoric to Reform*, Cambridge, MA: Harvard University Press, 1994.

Bavier, Richard. "An Early Look at the Effects of Welfare Reform." Mimeo, Office of Management and Budget, March 1999.

Blank, Rebecca M., “Analyzing the Length of Welfare Spells,” *Journal of Public Economics*, Vol. 39, No. 3, August 1989, pp. 245-273.

Blank, Rebecca M., “Evaluating Welfare Reform in the United States,” *Journal of Economic Literature*, forthcoming.

Blank, Rebecca M., “What Causes Public Assistance Caseloads to Grow?” *Journal of Human Resources*, Vol. 36, No. 1, Winter 2001.

Blank, Rebecca M., and Patricia Ruggles, “When Do Women Use AFDC and Food Stamps? The Dynamics of Eligibility versus Participation,” *Journal of Human Resources*, Vol. 31, No. 1, Winter 1996, pp. 57-89.

Boskin, Michael J., and Frederick C. Nold, "A Markov Model of Turnover in Aid to Families with Dependent Children," *Journal of Human Resources*, Vol. 10, No. 4, Autumn 1975, 467-481.

Council of Economic Advisers (CEA), *Explaining the Decline in Welfare Receipt, 1993-1996*, Washington, DC, May 1997.

Council of Economic Advisers (CEA), *The Effects of Welfare Policy and the Economic Expansion on Welfare Caseloads: An Update*, Washington, DC, August 1999.

Cox, D.R. (1967) "Some Sampling Problems in Technology." In N.L. Johnson and H. Smith, eds., *New Developments in Survey Sampling*. New York: Wiley.

Figlio, David N., and James P. Ziliak, “Welfare Reform, The Business Cycle, and the Decline in AFDC Caseloads,” in Sheldon H. Danziger, ed., *Economic Conditions and Welfare Reform*, Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1999, pp. 17-48.

Frank, Robert. (1978) "How Long is a Spell of Unemployment?" *Econometrica* 46, 285-302.

Gittleman, Maury, "Declining Caseloads: What Do the Dynamics of Welfare Participation Reveal?" *Industrial Relations*, Vol. 40, No. 4, October 2001, 537-570.

Grogger, Jeffrey, "Time Limits and Welfare Use," *Journal of Human Resources*, 2004 (forthcoming).

Grogger, Jeffrey, "The Effects of Time Limits, the EITC, and Other Policy Changes on Welfare Use, Work, and Income Among Female-Headed Families," *Review of Economics and Statistics*, 2003 (forthcoming).

Grogger, Jeffrey, Steven Haider, and Jacob A. Klerman, "Why Did the Welfare Rolls Fall? The Importance of Entry," *American Economic Review*, May 2003.

Grogger, Jeffrey, Lynn A. Karoly, and Jacob A. Klerman, *Consequences of Welfare Reform: A Research Synthesis*. Santa Monica, CA: RAND, 2002. http://www.acf.hhs.gov/programs/opre/welfare_reform/reform_cover.html

Harris, Kathleen M. "Work and Welfare among Single Mothers in Poverty." *American Journal of Sociology* 99, September 1993, 317-352.

Hofferth, Sandra L., Stephen Stanhope, and Kathleen Mullan Harris, "Remaining Off Welfare in the 1990s: The Influence of Public Policy and Economic Conditions," Ann Arbor, MI: Institute for Social Research, October 2000a.

Hofferth, Sandra L., Stephen Stanhope, and Kathleen Mullan Harris, "Exiting Welfare in the 1990s: Did Public Policy Influence Recipients' Behavior," Ann Arbor, MI: Institute for Social Research, October 2000b.

Hotz, V. Joseph, and John Karl Scholz, "The Earned Income Tax Credit." NBER Working Paper 8078, January 2001.

Hoynes, Hilary W., "Local Labor Markets and Welfare Spells: Do Demand Conditions Matter?" *Review of Economics and Statistics*, Vol. 83, No. 3, August 2000, 351-368.

Hutchens, Robert M., "Entry and Exit Transitions in a Government Transfer Program: The Case of Aid to Families with Dependent Children," *Journal of Human Resources*, Vol. 16, No. 3, Spring 1981, 217-237.

Klawitter, Marieka, Robert D. Plotnick, and Mark Evan Edwards, "Determinants of Initial Entry onto Welfare by Young Women," *Journal of Policy Analysis and Management*, Vol. 19, No. 4, 2000, 527-546.

Klerman, Jacob A., and Steven Haider, "A Stock-Flow Analysis of the Welfare Caseload: Insights from California Economic Conditions," Santa Monica, CA: RAND, September 2002.

Levine, Phillip B., and Diane M. Whitmore, "The Impact of Welfare Reform on the AFDC Caseload," *National Tax Association Proceedings–1997*, Washington, DC: National Tax Association, 1998.

MacRae, Duncan, "Work Incentives in Welfare Benefits: An Analysis of the U.S. Case," mimeo, UCLA Department of Political Science, May 2002.

MaCurdy, Thomas, David Mancuso, and Margaret O'Brien-Strain, "How Much Does California's Welfare Policy Explain the Slower Decline of Its Caseload," unpublished manuscript, December 2000.

Meyer, Bruce D., and Dan T. Rosenbaum, "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers," *Quarterly Journal of Economics*, Vol. CXVI, August 2001, pp. 1063-1114.

Moffitt, Robert A., "The Effect of Pre-PRWORA Waivers on AFDC Caseloads and Female Earnings, Income, and Labor Force Behavior," in Sheldon H. Danziger, ed., *Economic Conditions and Welfare Reform*, Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1999, pp. 91-118.

Mueser, Peter R., Julie L. Hotchkiss, Christopher T. King, Philip S. Rokicki, and David W. Stevens, *The Welfare Caseload, Economic Growth and Welfare-to-Work Policies: An Analysis of Five Urban Areas*, July 2000.

O'Neill, June E.,. Laurie J. Bassi, and Douglas A. Wolf, "The Duration of Welfare Spells," *Review of Economics and Statistics*, Vol. 69, No. 2, May 1987, 241-247.

O'Neill, June E., and M. Anne Hill, *Gaining Ground? Measuring the Impact of Welfare Reform on Welfare and Work*, New York, NY: Manhattan Institute for Policy Research, Civic Report #17, July 2001.

Pavetti, LaDonna A., *The Dynamics of Welfare and Work: Exploring the Process By Which Women Work Their Way Off Welfare*, Ph.D. Dissertation, Harvard University, 1993.

Rector, Robert E., and Sarah E. Youssef, *The Determinants of Welfare Caseload Decline*, Washington, DC: The Heritage Foundation, Paper # CDA99-04, May 1999.

Ribar, David C. "Transitions from Welfare and the Employment Prospects of Low-Skill Workers," Manuscript, George Washington University, July 2002.

Schoeni, Robert F., and Rebecca M. Blank, "What Has Welfare Reform Accomplished? Impacts on Welfare Participation, Employment, Income, Poverty, and Family Structure," Cambridge, MA: National Bureau of Economic Research, Working Paper #7627, March 2000.

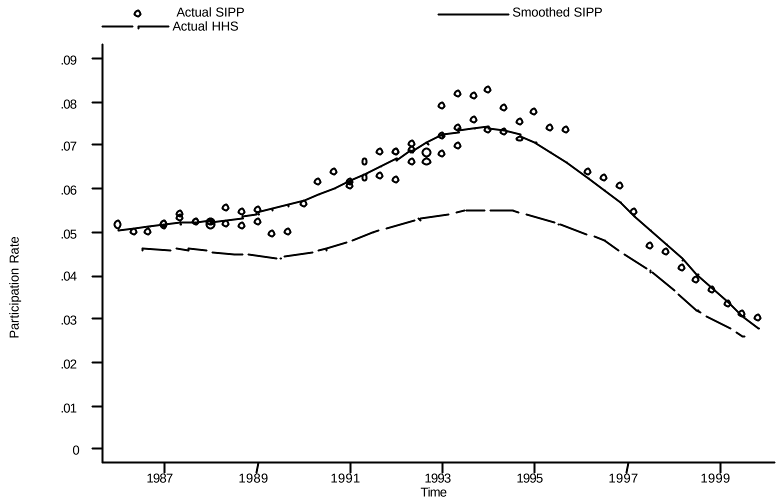
U.S. Bureau of Labor Statistics, *Labor Force Statistics from the Current Population Survey*, 2002, www.bls.gov/cps/home.htm.

U.S. Department of Health and Human Services, *U.S. Welfare Caseloads Information*, Washington, DC: Administration for Children and Families, www.acf.dhhs.gov/news/stats/newstat2.shtml, 2001b.

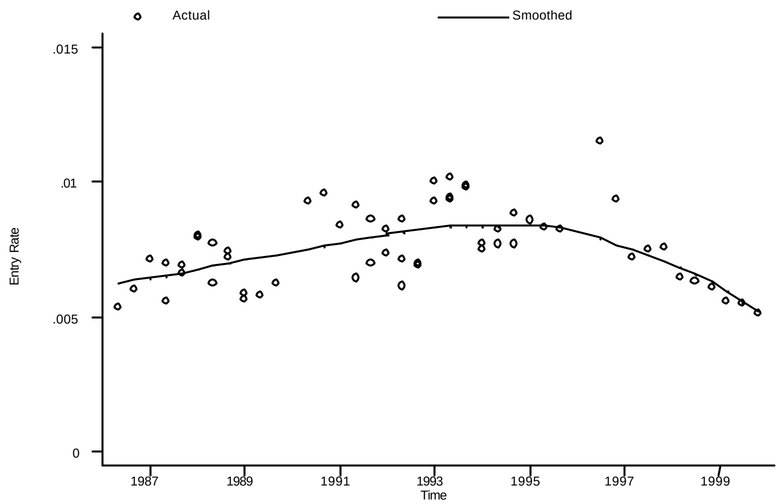
Wallace, Geoffrey, and Rebecca M. Blank, "What Goes Up Must Come Down? Explaining Recent Changes in Public Assistance Caseloads," in Sheldon H. Danziger, ed., *Economic Conditions and Welfare Reform*, Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1999, pp. 49-89.

Westat. *Survey of Income and Program Participation Users' Guide*, Third Edition. Washington, DC: U.S. Census Bureau, 2001.

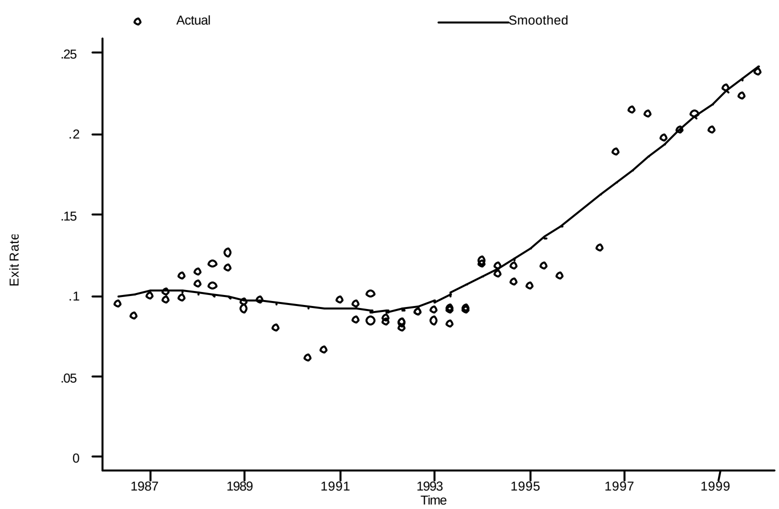
Ziliak, James P., David N. Figlio, Elizabeth E. Davis, and Laura S. Connolly, "Accounting for the Decline in AFDC Caseloads: Welfare Reform or the Economy?" *The Journal of Human Resources*, Vol. 35, No. 3, January 2000.



A. Participation



B. Entry



C. Exit

Figure 1
Welfare Participation, Entry, and Exit Rates

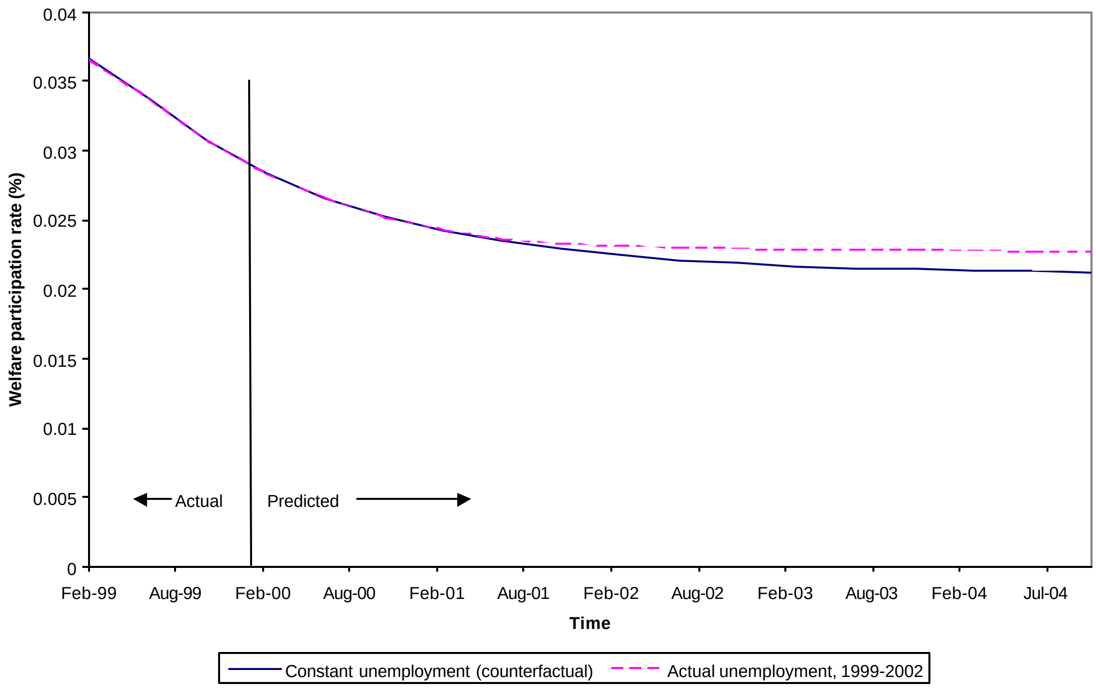


Figure 2
Predicted Effects of the Economy on the Welfare Participation Rate

Table 1
Characteristics of Spells and Recipients

A. Welfare spells	Ongoing Spells		Fresh Spells	
	Mean	Std. Dev.	Mean	Std. Dev.
Duration as of month 1[2]	61.7	65.3		
Median completed duration[1,2]	160	204	12	28
Right censored (%)	55.9		44.9	
4-month exit rate	0.070	0.255	0.189	0.392
Age	31.45	8.21	29.61	8.99
Married	0.098	0.297	0.155	0.362
High school diploma	0.387	0.487	0.431	0.495
No children	0.026	0.158	0.044	0.205
Number of children	2.33	1.37	1.95	1.24
Black	0.420	0.493	0.357	0.479
Hispanic	0.223	0.416	0.215	0.411
Number of spells	3,166	3,166	2,732	2,732
Number of people	3,166	3,166	2,455	2,455

B. Non-welfare spells	Ongoing Spells		Fresh Spells	
	Mean	Std. Dev.	Mean	Std. Dev.
Duration as of month 1[3]	216.4	141.7		
Median completed duration[4]				
Right censored (%)	96.3		65.9	
4-month entry rate	0.006	0.074	0.114	0.317
Age	34.53	11.90	32.04	8.92
Married	0.562	0.496	0.289	0.453
High school diploma	0.612	0.487	0.497	0.500
No children	0.568	0.495	0.135	0.342
Number of children	0.81	1.13	1.83	1.32
Black	0.126	0.331	0.340	0.474
Hispanic	0.126	0.331	0.182	0.386
Number of spells	50,571	50,571	2,567	2,567
Number of people	50,571	50,571	2,291	2,291

[1] Figures are medians and inter-quartile ranges.
[2] Durations are measured in months.
[3] Measured as months since age 15.
[4] The extent of right-censoring precludes estimation of median durations for non-welfare spells.

Table 2: The Economy, Welfare Reform, the EITC, and Welfare Benefits during the 1990s

A. Unemployment and low-skill wages

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Unemployment (%)	5.47 (1.14)	6.48 (1.54)	6.89 (1.61)	6.37 (1.51)	5.68 (1.32)	5.26 (1.28)	5.21 (1.24)	4.77 (1.22)	4.43 (1.19)	4.16 (1.05)	5.47 (1.56)
25^{th} Percentile Weekly Wages (1998$)	412 (51)	407 (49)	401 (50)	396 (48)	389 (43)	391 (41)	390 (42)	392 (41)	405 (42)	414 (40)	400 (45)

B. Number of states implementing state-wide waivers and TANF, by year of implementation

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Any state-wide waiver	0	0	3	4	4	8	10	0	0	0	29
TANF	0	0	0	0	0	0	24	26	1	0	51

C. Welfare benefits (1998$)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Maximum benefit, family of three	481 (189)	469 (188)	458 (182)	445 (176)	437 (172)	425 (168)	413 (161)	401 (153)	397 (151)	392 (154)	432 (171)

D. Key EITC Parameters

1. Combined federal and state phase-in credit rate (%)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
One-child families	14.1 (0.6)	16.9 (0.7)	17.9 (0.7)	18.7 (0.8)	26.6 (1.1)	34.4 (1.5)	34.6 (1.7)	34.5 (1.7)	34.9 (1.9)	34.8 (2.0)	26.7 (8.6)
Two-child families	14.2 (0.73)	17.6 (0.9)	18.7 (1.0)	19.8 (1.1)	30.5 (1.5)	36.7 (1.7)	40.8 (2.1)	40.9 (2.1)	41.1 (2.3)	41.2 (2.4)	30.1 (10.92)

2. Combined federal and state maximum credit (1998$)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
One-child families	1196 (47)	1439 (60)	1551 (64)	1633 (72)	2264 (94)	2263 (95)	2264 (109)	2277 (113)	2317 (135)	2314 (140)	1952 (431)
Multiple child families	1201 (62)	1496 (79)	1628 (86)	1727 (95)	2818 (139)	3369 (157)	3748 (191)	3774 (197)	3844 (246)	3830 (255)	2743 (1066)

Note: Figures represent means and (standard deviations) of annual state-level data, except in Panel B.

Table 3

Entry and Exit Regressions

Variable	Initial entry	Exit: Ongoing spells	Exit: Fresh spells	Re-entry
	(1)	(2)	(3)	(4)
Unemployment	0.107***	-0.152***	0.022	-0.014
	(0.036)	(0.043)	(0.050)	(0.067)
25th % Wages	-0.006***	0.003	0.002	-0.001
	(0.002)	(0.002)	(0.003)	(0.004)
Waiver	-0.102	0.143	0.015	-0.091
	(0.117)	(0.137)	(0.157)	(0.199)
TANF Program	-0.303	0.475**	0.279	-0.409
	(0.199)	(0.185)	(0.242)	(0.274)
Maximum AFDC Benefit (÷100)	0.228**	-0.124	-0.029	0.078
	(0.104)	(0.111)	(0.126)	(0.158)
EITC Credit Rate	-0.032***	0.019	0.019	-0.040*
	(0.011)	(0.013)	(0.015)	(0.020)
Age[a]		-0.007	-0.011**	-0.008
		(0.005)	(0.005)	(0.007)
Child < 3 Years	0.770***	-0.153	-0.490***	0.203
	(0.092)	(0.101)	(0.105)	(0.130)
Child >=3 and <=5 YRS	0.338***	0.004	-0.235**	0.208
	(0.099)	(0.094)	(0.109)	(0.130)
Married	-2.294***	0.840***	0.941***	-0.847***
	(0.075)	(0.101)	(0.099)	(0.117)
High School Dropout	0.683***	-0.317***	-0.259***	0.424***
	(0.063)	(0.070)	(0.078)	(0.095)
At Least Some College	-0.230	0.461***	0.139	0.154
	(0.149)	(0.175)	(0.152)	(0.207)
Black, Non-Hispanic	0.862***	-0.311***	-0.189**	0.118
	(0.075)	(0.087)	(0.092)	(0.117)
Hispanic	0.358***	-0.256***	-0.152	0.056
	(0.091)	(0.099)	(0.114)	(0.140)
No Children	-3.390***	2.091***	1.526***	-2.159***
	(0.252)	(0.302)	(0.407)	(0.512)
2 Children	0.082	-0.231**	-0.060	0.280**
	(0.079)	(0.095)	(0.102)	(0.129)
3+ Children	0.651***	-0.506***	-0.123	0.136
	(0.092)	(0.099)	(0.111)	(0.134)
Repeat spell			-0.184**	
			(0.089)	
Num. of Observations	336,144	17,589	7,258	8,134
Num. of Individuals	50,571	3,166	2,455	2,291
Log Likelihood	-8571.7	-4037.0	-3180.0	-2523.2
Duration Significant p>chi^2	0.000	0.000	0.000	0.000
Years Significant p>chi^2	0.000	0.001	0.703	0.521
States Significant p>chi^2	0.000	0.000	0.035	0.103

<u>Notes to Table 3</u>

[a] - Because age is collinear with the elapsed duration of initial non-welfare spells, it is entered as a series of dummies in the initial entry regression in order to provide a flexible baseline hazard.

Notes: Standard errors (in parentheses) account for presence of multiple observations per person In addition to the variables shown, all models include a constant, a dummy for other, non-Hispanic race/ethnicity, and (except for the initial entry regression) a set of elapsed duration dummies. Asterisks indicate significance at 10 percent (*), 5 percent (**), and 1 percent (***).

Table 4
Entry and Exit Regressions with Additional Controls for Economic Conditions

			Exit					
	Initial entry		Ongoing spells		Fresh spells		Re-entry	
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment	0.061	0.134***	-0.112*	-0.157***	0.091	0.007	-0.026	0.026
	(0.050)	(0.041)	(0.065)	(0.047)	(0.071)	(0.054)	(0.094)	(0.072)
25th % Wages	-0.005**	-0.005**	0.002	0.002	0.002	0.002	-0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Waiver	-0.116	-0.090	0.153	0.140	0.046	0.007	-0.096	-0.057
	(0.118)	(0.117)	(0.138)	(0.138)	(0.159)	(0.157)	(0.201)	(0.200)
TANF Program	-0.310	-0.295	0.479***	0.475**	0.299	0.279	-0.410	-0.422
	(0.199)	(0.199)	(0.185)	(0.185)	(0.242)	(0.242)	(0.274)	(0.274)
AFDC Benefit (÷100)	0.249**	0.213**	-0.135	-0.122	-0.059	-0.028	0.081	0.073
	(0.106)	(0.105)	(0.112)	(0.112)	(0.128)	(0.126)	(0.160)	(0.157)
EITC Credit Rate	-0.032***	-0.032***	0.019	0.019	0.019	0.019	-0.040*	-0.041**
	(0.011)	(0.011)	(0.013)	(0.013)	(0.015)	(0.015)	(0.020)	(0.020)
Lag Unemployment	0.063		-0.051		-0.093		0.016	
	(0.050)		(0.065)		(0.068)		(0.090)	
Job Growth		4.220		-0.824		-2.391		7.475
		(3.260)		(4.115)		(4.172)		(5.037)
Num. of Observations	336,144	336,144	17,589	17,589	7,258	7,258	8,134	8,134
Num. of Individuals	50,571	50,571	3,166	3,166	2,455	2,455	2,291	2,291
Log Likelihood	-8570.6	-8570.6	-4036.6	-4037.0	-3178.8	-3179.8	-2523.1	-2521.8

Notes: Standard errors (in parentheses) account for presence of mu ltiple observations per person. In addition to the variables shown, all models include all variables shown in Table 3 plus a constant, a dummy for other, non-Hispanic race/ethnicity, and (except for the initial entry regression) a set of elapsed duration dummies. Asterisks indicate significance at 10 percent (*), 5 percent (**), and 1 percent (***).
.

Table 5
Changes in Welfare Participation Attributable to the Economy, Welfare Reform, the EITC, and Other Factors:
1993-1999

A. Means and changes in welfare participation, 1993-1999

Year	Mean	Change, 93-99	Percent change, 93-99
1993	0.079		
1999	0.030	-0.049	-0.620

B. Changes in welfare participation explained by independent variables

Change:	Total			Due to entry			Due to exit		
Expressed:	In levels	As percent of 1993 level	As percent of 93-99 change	In levels	As percent of 1993 level	As percent of 93-99 change	In levels	As percent of 1993 level	As percent of 93-99 change
Attributable to	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Unemployment rate	-0.0024	-0.031	0.050	-0.0011	-0.014	0.022	-0.0013	-0.017	0.027
25th% Wages	-0.0003	-0.004	0.006	-0.0001	-0.001	0.002	-0.0002	-0.003	0.005
Waiver	-0.0006	-0.008	0.012	-0.0003	-0.004	0.006	-0.0003	-0.004	0.006
TANF	-0.0060	-0.077	0.124	-0.0024	-0.030	0.049	-0.0037	-0.047	0.076
Benefits	-0.0011	-0.014	0.022	-0.0007	-0.009	0.015	-0.0004	-0.005	0.008
EITC	-0.0051	-0.065	0.105	-0.0032	-0.040	0.065	-0.0020	-0.025	0.040
Total	-0.0155	-0.196	0.316	-0.0078	-0.099	0.159	-0.0079	-0.100	0.161

Note: Totals may not add due to independent rounding.